

# PATENT SPECIFICATION

198,229

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## PROVISIONAL SPECIFICATION.

### Improvements in Silencers for use with Internal Combustion Engines.

I, REGINALD FORD, a British subject, of 14, Coombe Street, Stoke, Coventry, Warwickshire, do hereby declare the nature of this invention to be as follows:—

This invention relates to silencers for use with internal combustion engines, and it has for its object to provide an extremely simple construction which will produce considerable silencing effect with little or no back pressure.

According to this invention, the body of the silencer comprises a cylinder, and in this is transversely placed one or more baffles, each of which has apertures so shaped as to cause the gases when passing through to take a rotary path. For example, six or any other suitable number of slits may be made in each baffle, and one wall of each slit may be knocked up so that as the gases pass through they take a helical path. The whirling effect causes, by centrifugal action, the gases to impinge on the outer wall and lose their energy.

In the preferred construction, the body of the silencer is a sheetmetal tube, and at each end is attached a cone. To one of such cones the exhaust pipe is attached, and to the other a tail pipe is fitted. These conical ends are not essential as flat ends to the body may be used.

In the body is fitted one or more baffles, each of which comprises a disc with a peripheral flange at right angles which is fitted tightly into the interior of the body and may be riveted there.

In each baffle are formed any suitable number, say six, radial slits, and one side of each slit is knocked up to open up the slit and to cause the gases, when flowing through the slit, to take an angular path.

When the gases travel through these slits they are split up into a number of streams each taking an angular path, so that the effect is that the exhaust gases are caused to rotate around the axis of the cylinder, after passing through the baffle.

Where more than one such baffle is used, the arrangement of each is such that the direction of rotation of the gases is reversed at each baffle.

Preferably the slits or other apertures in the baffles are large enough to ensure no back pressure, and it is found that considerable silencing effect is obtained with little or no loss of efficiency.

Dated this 19th day of June, 1922.

ERIC W. WALFORD,  
Fellow of the Chartered Institute of  
Patent Agents,  
18, Hertford Street, Coventry,  
Agent for the Applicant.

## COMPLETE SPECIFICATION.

### Improvements in Silencers for use with Internal Combustion Engines.

I, REGINALD FORD, a British subject, of 14, Coombe Street, Stoke, Coventry, Warwickshire, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascer-

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tained in and by the following statement:—

This invention relates to silencers for use with internal combustion engines, and it has for its object to provide an extremely simple construction which will produce considerable silencing effect with little or no back pressure.

According to this invention, the body of the silencer comprises a cylinder, and in this is transversely placed a number of baffles, each of which has apertures so shaped as to cause the gases when passing through to take a rotary path, and the arrangement is such that the direction of rotation of the gases is reversed on passing each baffle.

In the accompanying drawings, Figure 1 is a broken perspective view showing one construction, and

Figure 2 is a side elevation of the same on a smaller scale.

Like letters indicate like parts throughout the drawings.

In the construction illustrated, the body of the silencer is a sheet metal cylinder A, and at each end is attached a cone B or C. To the cone B the exhaust pipe is attached, and to the other a tail pipe may be fitted. These conical ends are not essential as flat ends to the body may be used.

In the tube A is fitted a number of baffles D, each of which is of a known type comprising a disc with a peripheral flange D<sup>2</sup> at right angles which is fitted tightly into the interior of the tube and may be riveted there.

In each baffle are formed any suitable number, say six, radial slits E, and one side of each slit is knocked up to open up the slit end to cause the gases, when

flowing through the slit, to take an angular path.

When the gases travel through these slits they are split up into a number of streams each taking an angular path, so that the effect is that the exhaust gases are caused to rotate around the axis of the cylinder, after passing through the baffle. According to the invention, the arrangement of the baffles and their apertures is such that the direction of rotation of the gases is reversed at each baffle, as is shown in Figure 2.

Preferably the slits or other apertures in the baffles are large enough to ensure no back pressure, and it is found that considerable silencing effect is obtained with little or no loss of efficiency.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A silencer of an internal combustion engine comprising a tubular body containing a number of baffles with apertures (such as E) so shaped that the exhaust gases take a rotary path as they travel along the body, the baffles and their apertures being so shaped that the direction of rotation of the gases is reversed on passing each baffle, substantially as described.

2. The complete silencer for an internal combustion engine substantially as described and illustrated in the accompanying drawings.

Dated this 19th day of March, 1923.

ERIC W. WALFORD,

Fellow of the Chartered Institute of

Patent Agents,

18, Hertford Street, Coventry,

Agent for the Applicant.

[This Drawing is a reproduction of the Original on a reduced scale.]

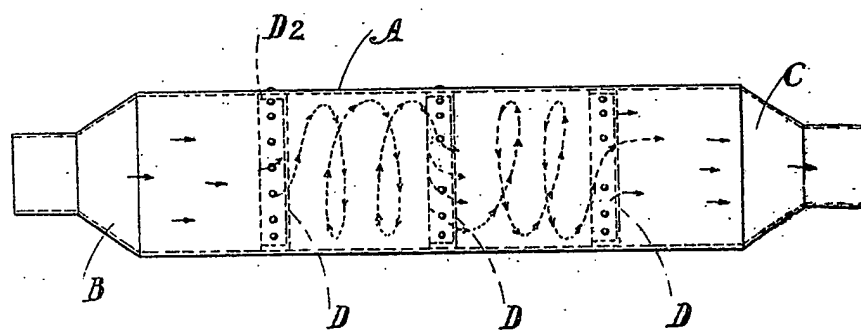
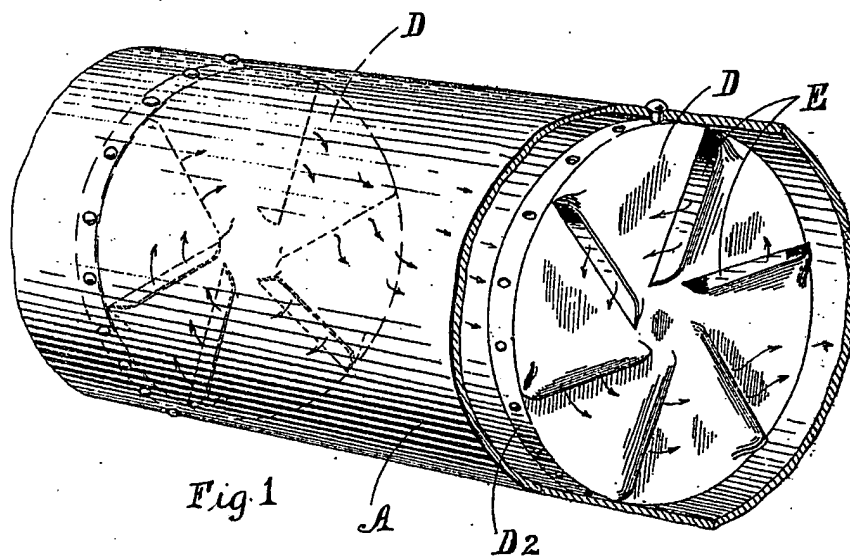


Fig. 2.